Application No.: Divisional of Serial No. 09/904,516

Attorney Docket No.: 012237-0307448

What is claimed is:

Claim 1. Water-soluble amphiphilic cationic associative polyurethanes of formula (I):

$$R-X-(P)_n-[L-(Y)_m]_r-L'-(P')_p-X'-R'$$
 (I)

in which:

R and R', are identical or different, and represent a hydrophobic group or a hydrogen atom; X and X', are identical or different, and represent a group comprising an amine functional group which may or may not carry a hydrophobic group or an L" group;

L, L' and L", are identical or different, and represent a group derived from diisocyanate; P and P', are identical or different, and represent a group comprising an amine functional group which may or may not carry a hydrophobic group;

Y represents a hydrophilic group;

r is an integer between 1 and 100,

n, m and p have values, each independently of the others, between 0 and 1000; the molecule comprising at least one protonated or quaternized amine functional group and at least one hydrophobic group.

Claim 2. The polyurethane according to Claim 1, wherein the only hydrophobic groups are the R and R' groups.

Claim 3. The polyurethane according to Claim 1, wherein R and R' independently represent a hydrophobic group; X and X' are L"; n and p have values between 1 and 1000; and L, L', L", P, P', Y and m are the same as Claim 1.

Claim 4. The polyurethane according to Claim 1, wherein R and R' independently represent a hydrophobic group; X and X' are L"; n and p have the value 0; and L, L', L", Y and m are the same as Claim 1.

Claim 5. The polyurethane according to Claim 1, wherein R and R' independently represent a hydrophobic group; X and X' comprise a quartenary amine; n and p have the value 0; and L, L', Y and m are the same as Claim 1.

Claim 6. The polyurethane according to Claim 1, which exhibits a number-average molecular mass between 400 and 500,000.

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Claim 7. The polyurethane according to Claim 6, which has a number-average molecular mass ranging from 1,000 to 400,000.

Claim 8. The polyurethane according to Claim 7, which has a number-average molecular mass ranging from 1,000 to 300,000.

Claim 9. The polyurethane according to Claim 1, wherein R and R' represent a radical or a polymer with a saturated or unsaturated and linear or branched hydrocarbonaceous chain, in which chain one or more of the carbon atoms is optionally replaced by a heteroatom selected from the group consisting of S, N, O and P, or a radical comprising a silicone or perfluorinated chain.

Claim 10. The polyurethane according to Claim 1, wherein X and X' represent one of the formulae:

in which:

R₂ represents a linear or branched alkylene radical having from 1 to 20 carbon atoms, which optionally may comprise a saturated or unsaturated ring, or an arylene radical, wherein one or more carbon atoms optionally is replaced by a heteroatom selected from the group consisting of N, S, O, or P;

 R_1 and R_3 , are identical or different, are a linear or branched C_1 - C_{30} alkyl or alkenyl radical or an aryl radical, wherein at least one of the carbon atoms optionally can be replaced by a heteroatom selected from the group consisting of N, S, O, and P;

A is a physiologically acceptable counter ion.

Claim 11. The polyurethane according to Claim 1, wherein L, L', and L" are identical or

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different, represent the formula:

in which:

Z represents -O-, -S-, or -NH-; and

R₄ represents a linear or branched alkylene radical having from 1 to 20 carbon atoms, which optionally may comprise a saturated or unsaturated ring, or an arylene radical, wherein one or more of the carbon atoms optionally is replaced by a heteroatom chosen from N, S, O, and P.

Claim 12. The polyurethane according to Claim 1, wherein P and P' are identical or different, and are selected from the following formulae:

or
$$R_1$$
 R_1 R_2 R_3 R_4 R_5 R_6 R_6 R_6 R_6 R_8 R_8

or
$$R_1$$
 R_1 R_5 — R_7 — R_7 —or R_{10} R_{10} R_6 — R_7 — R_9 R_8 R_8

R₅ and R₇ are identical or different and represents a linear or branched alkylene radical having from 1 to 20 carbon atoms, which optionally may comprise a saturated or unsaturated ring, or an arylene radical, wherein one or more carbon atoms optionally is replaced by a heteroatom selected from the group consisting of N, S, O, or P;

R₆, R₈ and R₉ are identical or different, are a linear or branched C₁-C₃₀ alkyl or alkenyl radical or an aryl radical, wherein at least one of the carbon atoms optionally can be replaced

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by a heteroatom selected from the group consisting of N, S, Om and P;

R₁₀ represents a linear or branched alkylene group which is optionally unsaturated and which optionally comprises one or more heteroatoms selected from the group consisting of N, O, S and P, and

A is a physiologically acceptable counter ion.

Claim 13. The polyurethane according to Claim 1, wherein Y represents a glycol selected from the group consisting of ethylene glycol, diethylene glycol and propylene glycol or a polymer selected from the group consisting of polyethers, sulphonated polyesters and sulphonated polyamides.

Claim 14. A method for using a polyurethane as defined in Claim 1 as a thickener or gelling agent comprising adding said polyurethane to a composition which is to be used for topical application as a cosmetic.

Claim 15. A cosmetic composition thickened or gellified with at least one water-soluble polyurethane according to Claim 1.

Claim 16. The polyurethane according to Claim 1, wherein r is an integer between 1 and 50.

Claim 17. The polyurethane according to Claim 16, wherein r is an integer between 1 and 25.